Map Unit Description (MN)

Ramsey County, Minnesota

[Data apply to the entire extent of the map unit within the survey area. Map unit and soil properties for a specific parcel of land may vary somewhat and should be determined by onsite investigation]

8B--Sparta loamy sand, 2 to 6 percent slopes

Sparta

Extent: 90 percent of the unit
Landform(s): outwash terraces
Slope gradient: 2 to 6 percent
Parent material: sandy glaciofluvial deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .17
Land capability, nonirrigated: 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,AB -- 0 to 16 in	loamy sand	moderately rapid	1.45 to 1.94 in	5.1 to 7.3
Bw -- 16 to 28 in	loamy sand	rapid	1.06 to 1.30 in	5.1 to 7.3
C -- 28 to 60 in	sand	rapid	1.59 to 3.19 in	5.1 to 7.3

12C--Emmert gravelly loamy coarse sand, 3 to 12 percent slopes

Emmert

Extent: 90 percent of the unit
Landform(s): pitted outwash plains
Slope gradient: 3 to 12 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .05
Land capability, nonirrigated: 6s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 6 in	gravelly loamy coarse sand	very rapid	0.35 to 0.59 in	5.1 to 6.5
Bw,C -- 6 to 60 in	extremely gravelly coarse sand	very rapid	1.08 to 2.16 in	5.1 to 7.3

49--Antigo silt loam, 0 to 2 percent slopes

Antigo

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 2 percent
Parent material: loess over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .49
Land capability, nonirrigated: 2s
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 2 in	silt loam	moderate	0.39 to 0.47 in	4.5 to 6.5
E -- 2 to 13 in	silt loam	moderate	2.20 to 2.43 in	4.5 to 6.5
Bt1,Bt2 -- 13 to 26 in	silt loam	moderate	2.08 to 2.86 in	4.5 to 6.5
2Bt3 -- 26 to 38 in	loamy sand	moderately rapid	0.59 to 2.24 in	4.5 to 6.5
2C -- 38 to 60 in	gravelly sand	rapid	0.44 to 1.32 in	5.1 to 6.5

49B--Antigo silt loam, 2 to 6 percent slopes

Antigo

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 2 to 6 percent
Parent material: loess over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .49
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 2 in	silt loam	moderate	0.39 to 0.47 in	4.5 to 6.5
E -- 2 to 13 in	silt loam	moderate	2.20 to 2.43 in	4.5 to 6.5
Bt1,Bt2 -- 13 to 26 in	silt loam	moderate	2.08 to 2.86 in	4.5 to 6.5
2Bt3 -- 26 to 38 in	loamy sand	moderately rapid	0.59 to 2.24 in	4.5 to 6.5
2C -- 38 to 60 in	gravelly sand	rapid	0.44 to 1.32 in	5.1 to 6.5

49C--Antigo silt loam, 6 to 12 percent slopes

Antigo

Extent: 90 percent of the unit
Landform(s): pitted outwash plains
Slope gradient: 6 to 12 percent
Parent material: loess over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .49
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 2 in	silt loam	moderate	0.39 to 0.47 in	4.5 to 6.5
E -- 2 to 13 in	silt loam	moderate	2.20 to 2.43 in	4.5 to 6.5
Bt1,Bt2 -- 13 to 26 in	silt loam	moderate	2.08 to 2.86 in	4.5 to 6.5
2Bt3 -- 26 to 38 in	loamy sand	moderately rapid	0.59 to 2.24 in	4.5 to 6.5
2C -- 38 to 60 in	gravelly sand	rapid	0.44 to 1.32 in	5.1 to 6.5

49D--Antigo silt loam, 12 to 18 percent slopes

Antigo

Extent: 90 percent of the unit
Landform(s): pitted outwash plains
Slope gradient: 12 to 18 percent
Parent material: loess over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .49
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 2 in	silt loam	moderate	0.39 to 0.47 in	4.5 to 6.5
E -- 2 to 13 in	silt loam	moderate	2.20 to 2.43 in	4.5 to 6.5
Bt1,Bt2 -- 13 to 26 in	silt loam	moderate	2.08 to 2.86 in	4.5 to 6.5
2Bt3 -- 26 to 38 in	loamy sand	moderately rapid	0.59 to 2.24 in	4.5 to 6.5
2C -- 38 to 60 in	gravelly sand	rapid	0.44 to 1.32 in	5.1 to 6.5

75--Bluffton loam

Bluffton

Extent: 85 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 2 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .28
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1 -- 0 to 19 in	loam	moderate	3.78 to 4.54 in	5.6 to 7.3
Bg -- 19 to 22 in	fine sandy loam	moderate	0.47 to 0.54 in	5.6 to 7.3
Cg -- 22 to 60 in	sandy clay loam	moderately slow	5.67 to 7.18 in	7.4 to 8.4

100B--Copaston loam, 0 to 6 percent slopes

Copaston

Extent: 100 percent of the unit
Landform(s): terraces, hills
Slope gradient: 0 to 6 percent
Parent material: loamy sediment over bedrock
Restrictive feature(s): lithic bedrock at 12 to 20 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .28
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 8 in	loam	moderate	1.57 to 1.73 in	5.6 to 7.3
Bw1 -- 8 to 14 in	sandy loam	moderately rapid	0.94 to 1.07 in	5.6 to 7.3
Bw2 -- 14 to 18 in	gravelly sandy loam	moderately rapid	0.47 to 0.55 in	5.6 to 7.8
2R -- 18 to 22 in	unweathered bedrock	moderate		

100C--Copaston loam, 6 to 12 percent slopes

Copaston

Extent: 100 percent of the unit
Landform(s): terraces, hills
Slope gradient: 6 to 12 percent
Parent material: loamy sediment over bedrock
Restrictive feature(s): lithic bedrock at 12 to 20 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .28
Land capability, nonirrigated: 6s
Hydric soil: no
Hydrologic group: D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 8 in	loam	moderate	1.57 to 1.73 in	5.6 to 7.3
Bw1 -- 8 to 14 in	sandy loam	moderately rapid	0.94 to 1.07 in	5.6 to 7.3
Bw2 -- 14 to 18 in	gravelly sandy loam	moderately rapid	0.47 to 0.55 in	5.6 to 7.8
2R -- 18 to 22 in	unweathered bedrock	moderate		

113--Webster loam

Webster

Extent: 85 percent of the unit
Landform(s): drainageways on moraines
Slope gradient: 0 to 2 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1 -- 0 to 16 in	loam	moderate	3.07 to 3.39 in	6.6 to 7.3
Bg -- 16 to 25 in	loam	moderate	1.45 to 1.63 in	6.6 to 7.8
Cg -- 25 to 60 in	sandy clay loam	moderate	4.85 to 6.58 in	7.4 to 8.4

120--Brill silt loam

Brill

Extent: 90 percent of the unit
Landform(s): drainageways on outwash plains
Slope gradient: 0 to 2 percent
Parent material: loess over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .37
Land capability, nonirrigated: 2s
Hydric soil: no
Hydrologic group: C
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 3 in	silt loam	moderate	0.63 to 0.76 in	4.5 to 7.3
E -- 3 to 11 in	silt loam	moderate	1.26 to 1.73 in	4.5 to 6.5
B/E -- 11 to 14 in	silt loam	moderate	0.50 to 0.69 in	4.5 to 6.5
Bt -- 14 to 35 in	silt loam	moderate	3.34 to 4.59 in	4.5 to 6.5
2C -- 35 to 60 in	stratified sand to coarse sand	rapid	0.25 to 1.74 in	4.5 to 6.5

123--Dundas fine sandy loam

Dundas

Extent: 85 percent of the unit
Landform(s): flats, drainageways on moraines
Slope gradient: 0 to 2 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .17
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	fine sandy loam	moderate	1.36 to 1.81 in	5.6 to 6.5
E -- 9 to 13 in	sandy clay loam	moderate	0.59 to 0.75 in	5.6 to 7.3
Btg -- 13 to 45 in	sandy clay loam	moderate	4.78 to 6.06 in	5.6 to 7.3
Cg -- 45 to 60 in	loam	moderate	2.09 to 2.84 in	7.4 to 8.4

132B--Hayden fine sandy loam, 2 to 6 percent slopes

Hayden

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 2 to 6 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	fine sandy loam	moderately rapid	1.27 to 1.63 in	5.6 to 7.3
E -- 9 to 15 in	fine sandy loam	moderately rapid	0.71 to 1.06 in	5.6 to 7.3
Bt -- 15 to 50 in	clay loam	moderate	5.26 to 6.66 in	5.1 to 7.3
C -- 50 to 60 in	loam	moderate	1.38 to 1.87 in	7.4 to 8.4

132C--Hayden fine sandy loam, 6 to 12 percent slopes

Hayden

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 6 to 12 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 4 in	fine sandy loam	moderately rapid	0.55 to 0.71 in	5.6 to 7.3
E -- 4 to 12 in	fine sandy loam	moderately rapid	0.94 to 1.42 in	5.6 to 7.3
Bt -- 12 to 42 in	clay loam	moderate	4.55 to 5.76 in	5.1 to 7.3
C -- 42 to 60 in	loam	moderate	2.48 to 3.37 in	7.4 to 8.4

132D--Hayden fine sandy loam, 12 to 25 percent slopes

Hayden

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 12 to 25 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 4 in	fine sandy loam	moderately rapid	0.55 to 0.71 in	5.6 to 7.3
E -- 4 to 6 in	fine sandy loam	moderately rapid	0.24 to 0.35 in	5.6 to 7.3
Bt -- 6 to 36 in	clay loam	moderate	4.49 to 5.69 in	5.1 to 7.3
C -- 36 to 60 in	loam	moderate	3.36 to 4.56 in	7.4 to 8.4

153B--Santiago silt loam, 2 to 6 percent slopes

Santiago

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 2 to 6 percent
Parent material: loess over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .37
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	silt loam	moderate	1.42 to 1.70 in	4.5 to 7.3
E -- 7 to 10 in	silt loam	moderate	0.55 to 0.66 in	4.5 to 7.3
Bt -- 10 to 25 in	silt loam	moderate	3.07 to 3.53 in	4.5 to 6.5
2Bt -- 25 to 40 in	sandy loam	moderate	1.35 to 2.69 in	4.5 to 6.5
2C -- 40 to 60 in	sandy loam	moderately slow	1.57 to 3.15 in	5.1 to 7.3

153C--Santiago silt loam, 6 to 15 percent slopes

Santiago

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 6 to 15 percent
Parent material: loess over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .37
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	silt loam	moderate	1.42 to 1.70 in	4.5 to 7.3
E -- 7 to 10 in	silt loam	moderate	0.55 to 0.66 in	4.5 to 7.3
Bt -- 10 to 25 in	silt loam	moderate	3.07 to 3.53 in	4.5 to 6.5
2Bt -- 25 to 40 in	sandy loam	moderate	1.35 to 2.69 in	4.5 to 6.5
2C -- 40 to 60 in	sandy loam	moderately slow	1.57 to 3.15 in	5.1 to 7.3

155B--Chetek sandy loam, 0 to 6 percent slopes

Chetek

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 6 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 2
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	sandy loam	moderately rapid	0.79 to 1.18 in	5.1 to 7.3
E -- 8 to 14 in	loam	moderately rapid	0.57 to 1.20 in	5.1 to 7.3
Bt -- 14 to 19 in	gravelly sandy loam	moderately rapid	0.38 to 0.61 in	5.1 to 7.3
2BC,2C -- 19 to 60 in	gravelly coarse sand	rapid	0.82 to 1.64 in	5.1 to 7.3

155C--Chetek sandy loam, 6 to 12 percent slopes

Chetek

Extent: 90 percent of the unit
Landform(s): pitted outwash plains
Slope gradient: 6 to 12 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 2
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	sandy loam	moderately rapid	0.79 to 1.18 in	5.1 to 7.3
E -- 8 to 14 in	loam	moderately rapid	0.57 to 1.20 in	5.1 to 7.3
Bt -- 14 to 19 in	gravelly sandy loam	moderately rapid	0.38 to 0.61 in	5.1 to 7.3
2BC,2C -- 19 to 60 in	gravelly coarse sand	rapid	0.82 to 1.64 in	5.1 to 7.3

155D--Chetek sandy loam, 12 to 25 percent slopes

Chetek

Extent: 90 percent of the unit
Landform(s): pitted outwash plains
Slope gradient: 12 to 25 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 2
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	sandy loam	moderately rapid	0.79 to 1.18 in	5.1 to 7.3
E -- 8 to 14 in	loam	moderately rapid	0.57 to 1.20 in	5.1 to 7.3
Bt -- 14 to 19 in	gravelly sandy loam	moderately rapid	0.38 to 0.61 in	5.1 to 7.3
2BC,2C -- 19 to 60 in	gravelly coarse sand	rapid	0.82 to 1.64 in	5.1 to 7.3

158B--Zimmerman loamy fine sand, 0 to 6 percent slopes

Zimmerman

Extent: 90 percent of the unit
Landform(s): lake plains
Slope gradient: 0 to 6 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .24
Land capability, nonirrigated: 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E -- 0 to 15 in	loamy fine sand	rapid	1.50 to 1.80 in	5.1 to 6.5
E/Bt -- 15 to 60 in	fine sand	rapid	2.69 to 4.49 in	5.1 to 7.3

158C--Zimmerman loamy fine sand, 6 to 12 percent slopes

Zimmerman

Extent: 90 percent of the unit
Landform(s): lake plains
Slope gradient: 6 to 12 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .24
Land capability, nonirrigated: 6s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E -- 0 to 15 in	loamy fine sand	rapid	1.50 to 1.80 in	5.1 to 6.5
E/Bt -- 15 to 60 in	fine sand	rapid	2.69 to 4.49 in	5.1 to 7.3

158D--Zimmerman loamy fine sand, 12 to 25 percent slopes

Zimmerman

Extent: 90 percent of the unit
Landform(s): lake plains
Slope gradient: 12 to 25 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .24
Land capability, nonirrigated: 6s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E -- 0 to 15 in	loamy fine sand	rapid	1.50 to 1.80 in	5.1 to 6.5
E/Bt -- 15 to 60 in	fine sand	rapid	2.69 to 4.49 in	5.1 to 7.3

159--Anoka loamy fine sand, 0 to 3 percent slopes

Anoka

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 3 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .24
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loamy fine sand	rapid	1.18 to 1.45 in	5.6 to 6.5
E/Bt -- 9 to 60 in	loamy fine sand	moderately rapid	5.08 to 8.13 in	5.1 to 6.5

159B--Anoka loamy fine sand, 3 to 9 percent slopes

Anoka

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 3 to 9 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .24
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: A
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loamy fine sand	rapid	1.18 to 1.45 in	5.6 to 6.5
E/Bt -- 9 to 60 in	loamy fine sand	moderately rapid	5.08 to 8.13 in	5.1 to 6.5

161--Isanti loamy fine sand, depressional

Isanti, depressional

Extent: 85 percent of the unit
Landform(s): depressions on outwash plains
Slope gradient: 0 to 1 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .17
Land capability, nonirrigated: 6w
Hydric soil: yes
Hydrologic group: A/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A1,A2 -- 0 to 13 in	loamy fine sand	rapid	1.30 to 1.56 in	5.1 to 6.5
Bg -- 13 to 42 in	fine sand	rapid	1.75 to 2.33 in	5.1 to 6.5
Cg -- 42 to 60 in	loamy fine sand	rapid	0.89 to 1.24 in	5.6 to 6.5

162--Lino loamy fine sand

Lino

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 3 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .20
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loamy fine sand	rapid	0.91 to 1.09 in	5.1 to 6.0
Bw -- 9 to 36 in	loamy fine sand	rapid	1.61 to 2.14 in	5.1 to 6.0
C -- 36 to 60 in	fine sand	rapid	1.20 to 1.68 in	5.1 to 6.5

166--Ronneby fine sandy loam

Ronneby

Extent: 90 percent of the unit
Landform(s): drainageways on moraines
Slope gradient: 0 to 2 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated: 2w
Hydric soil: no
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	fine sandy loam	moderately rapid	1.18 to 1.63 in	5.1 to 6.5
E -- 9 to 18 in	fine sandy loam	moderately rapid	1.09 to 1.72 in	5.1 to 6.5
Btg -- 18 to 41 in	sandy loam	moderate	2.74 to 4.34 in	5.6 to 6.5
C -- 41 to 60 in	sandy loam	moderately slow	1.51 to 3.02 in	5.6 to 7.3

169B--Braham loamy fine sand, 1 to 6 percent slopes

Braham

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 1 to 6 percent
Parent material: outwash over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .28
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loamy fine sand	rapid	0.91 to 1.09 in	5.6 to 7.3
E -- 9 to 28 in	loamy fine sand	rapid	1.51 to 1.89 in	5.6 to 7.3
2Bt -- 28 to 39 in	sandy clay loam	moderate	1.65 to 1.98 in	5.1 to 7.3
2C -- 39 to 60 in	loam	moderate	3.13 to 3.76 in	7.4 to 8.4

169C--Braham loamy fine sand, 6 to 15 percent slopes

Braham

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 6 to 15 percent
Parent material: outwash over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .28
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loamy fine sand	rapid	0.91 to 1.09 in	5.6 to 7.3
E -- 9 to 28 in	loamy fine sand	rapid	1.51 to 1.89 in	5.6 to 7.3
2Bt -- 28 to 39 in	sandy clay loam	moderate	1.65 to 1.98 in	5.1 to 7.3
2C -- 39 to 60 in	loam	moderate	3.13 to 3.76 in	7.4 to 8.4

170--Blomford loamy fine sand

Blomford

Extent: 85 percent of the unit
Landform(s): drainageways on moraines
Slope gradient: 0 to 3 percent
Parent material: outwash over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .15
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loamy fine sand	rapid	0.72 to 1.09 in	5.1 to 7.3
Eg -- 9 to 25 in	loamy fine sand	rapid	0.81 to 1.29 in	5.1 to 7.3
2Btg -- 25 to 39 in	sandy clay loam	moderate	1.79 to 2.34 in	5.1 to 7.3
2C -- 39 to 60 in	loam	moderate	2.09 to 3.13 in	6.6 to 8.4

177B--Gotham loamy sand, 1 to 6 percent slopes

Gotham

Extent: 90 percent of the unit
Landform(s): pitted outwash plains
Slope gradient: 1 to 6 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .17
Land capability, nonirrigated: 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loamy sand	rapid	0.91 to 1.09 in	5.6 to 7.3
E -- 9 to 20 in	loamy sand	rapid	0.66 to 1.21 in	5.1 to 7.3
Bt -- 20 to 33 in	loamy sand	rapid	1.17 to 1.43 in	5.1 to 7.3
C -- 33 to 60 in	loamy sand	rapid	1.34 to 2.68 in	5.1 to 7.3

177C--Gotham loamy sand, 6 to 12 percent slopes

Gotham

Extent: 90 percent of the unit
Landform(s): pitted outwash plains
Slope gradient: 6 to 12 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .17
Land capability, nonirrigated: 6s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loamy sand	rapid	0.91 to 1.09 in	5.6 to 7.3
E -- 9 to 20 in	loamy sand	rapid	0.66 to 1.21 in	5.1 to 7.3
Bt -- 20 to 33 in	loamy sand	rapid	1.17 to 1.43 in	5.1 to 7.3
C -- 33 to 60 in	loamy sand	rapid	1.34 to 2.68 in	5.1 to 7.3

177D--Gotham loamy sand, 12 to 20 percent slopes

Gotham

Extent: 90 percent of the unit
Landform(s): pitted outwash plains
Slope gradient: 12 to 20 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .17
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loamy sand	rapid	0.91 to 1.09 in	5.6 to 7.3
E -- 9 to 20 in	loamy sand	rapid	0.66 to 1.21 in	5.1 to 7.3
Bt -- 20 to 33 in	loamy sand	rapid	1.17 to 1.43 in	5.1 to 7.3
C -- 33 to 60 in	loamy sand	rapid	1.34 to 2.68 in	5.1 to 7.3

189--Auburndale silt loam

Auburndale

Extent: 85 percent of the unit
Landform(s): drainageways on moraines, depressions on moraines
Slope gradient: 0 to 2 percent
Parent material: loess over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .37
Land capability, nonirrigated: 6w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	4.5 to 7.3
E,B/E -- 7 to 17 in	silt loam	moderate	1.97 to 2.36 in	4.5 to 6.0
Bt -- 17 to 45 in	silt loam	moderate	5.59 to 6.15 in	4.5 to 6.0
2C -- 45 to 60 in	sandy loam	moderately slow	1.20 to 2.39 in	4.5 to 6.5

225--Nessel fine sandy loam, 1 to 4 percent slopes

Nessel

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 1 to 4 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated: 1
Hydric soil: no
Hydrologic group: C
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 4 in	fine sandy loam	moderately rapid	0.63 to 0.79 in	5.6 to 7.3
E -- 4 to 13 in	fine sandy loam	moderately rapid	1.36 to 1.72 in	5.6 to 7.3
Bt -- 13 to 41 in	loam	moderate	4.47 to 5.31 in	5.1 to 7.3
C -- 41 to 60 in	fine sandy loam	moderate	3.21 to 3.59 in	7.4 to 8.4

259B--Grays silt loam, 2 to 6 percent slopes

Grays

Extent: 90 percent of the unit
Landform(s): lake plains
Slope gradient: 2 to 6 percent
Parent material: lacustrine
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: C
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	silt loam	moderate	1.73 to 1.89 in	5.6 to 7.3
E -- 8 to 11 in	silt loam	moderate	0.69 to 0.76 in	5.6 to 6.5
Bt -- 11 to 48 in	silty clay loam	moderate	6.66 to 7.40 in	5.6 to 6.5
C -- 48 to 60 in	silt loam	moderate	1.65 to 2.60 in	7.4 to 8.4

264--Freeon silt loam, 1 to 4 percent slopes

Freeon

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 1 to 4 percent
Parent material: loess over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .43
Land capability, nonirrigated: 1
Hydric soil: no
Hydrologic group: C
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	silt loam	moderate	1.57 to 1.89 in	4.5 to 7.3
E,BE -- 8 to 18 in	silt loam	moderate	1.84 to 2.25 in	4.5 to 7.3
Bt1,Bt2 -- 18 to 30 in	silt loam	moderate	2.13 to 2.60 in	4.5 to 7.3
2Bt3 -- 30 to 54 in	sandy loam	moderately slow	1.92 to 4.32 in	4.5 to 6.5
2BC,2C -- 54 to 60 in	sandy loam	moderately slow	0.47 to 0.94 in	5.1 to 7.3

265--Soderville loamy fine sand

Soderville

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 3 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .20
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	loamy fine sand	rapid	0.79 to 0.94 in	5.1 to 6.5
E -- 8 to 17 in	loamy fine sand	rapid	0.54 to 0.72 in	5.1 to 6.5
E/Bt -- 17 to 47 in	loamy fine sand	rapid	1.80 to 3.29 in	5.1 to 6.5
C -- 47 to 60 in	fine sand	rapid	0.65 to 1.30 in	5.1 to 6.5

266--Freer silt loam

Freer

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 0 to 2 percent
Parent material: loess over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .43
Land capability, nonirrigated: 2w
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	silt loam	moderate	1.57 to 1.89 in	4.5 to 6.0
E -- 8 to 12 in	silt loam	moderate	0.71 to 0.87 in	4.5 to 6.0
Bt1 -- 12 to 23 in	loam	moderate	1.54 to 2.31 in	5.1 to 6.0
2Bt2 -- 23 to 37 in	sandy loam	moderate	2.41 to 2.69 in	5.1 to 6.0
2C -- 37 to 60 in	sandy loam	moderately slow	1.83 to 3.65 in	5.6 to 7.3

298--Richwood silt loam, 0 to 2 percent slopes

Richwood

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 2 percent
Parent material: loess over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .37
Land capability, nonirrigated: 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 19 in	silt loam	moderate	4.16 to 4.54 in	5.6 to 7.3
Bt -- 19 to 49 in	silt loam	moderate	5.39 to 6.58 in	5.6 to 7.3
2C -- 49 to 60 in	sand	rapid	0.55 to 0.77 in	6.1 to 7.3

298B--Richwood silt loam, 2 to 6 percent slopes

Richwood

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 2 to 6 percent
Parent material: loess over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .37
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 19 in	silt loam	moderate	4.16 to 4.54 in	5.6 to 7.3
Bt -- 19 to 49 in	silt loam	moderate	5.39 to 6.58 in	5.6 to 7.3
2C -- 49 to 60 in	sand	rapid	0.55 to 0.77 in	6.1 to 7.3

301B--Lindstrom silt loam, 2 to 4 percent slopes

Lindstrom

Extent: 90 percent of the unit
Landform(s): loess hills
Slope gradient: 2 to 4 percent
Parent material: loess
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .37
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	silt loam	moderate	1.81 to 1.99 in	5.6 to 7.3
A,AB -- 9 to 37 in	silt loam	moderate	6.15 to 7.27 in	5.6 to 7.3
Bw -- 37 to 58 in	silt loam	moderate	4.17 to 4.59 in	5.6 to 7.3
C -- 58 to 60 in	silt loam	moderate	0.33 to 0.37 in	6.6 to 7.8

302B--Rosholt sandy loam, 1 to 6 percent slopes

Rosholt

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 1 to 6 percent
Parent material: loamy sediment over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: A
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 11 in	sandy loam	moderately rapid	1.10 to 1.98 in	4.5 to 7.3
Bt -- 11 to 21 in	sandy loam	moderately rapid	0.98 to 2.17 in	4.5 to 6.5
2Bt -- 21 to 31 in	gravelly loamy coarse sand	moderately rapid	0.41 to 1.64 in	4.5 to 6.5
2C -- 31 to 60 in	gravelly sand	rapid	0.57 to 1.15 in	5.1 to 6.5

302C--Rosholt sandy loam, 6 to 15 percent slopes

Rosholt

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 6 to 15 percent
Parent material: loamy sediment over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: A
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 11 in	sandy loam	moderately rapid	1.10 to 1.98 in	4.5 to 7.3
Bt -- 11 to 21 in	sandy loam	moderately rapid	0.98 to 2.17 in	4.5 to 6.5
2Bt -- 21 to 31 in	gravelly loamy coarse sand	moderately rapid	0.41 to 1.64 in	4.5 to 6.5
2C -- 31 to 60 in	gravelly sand	rapid	0.57 to 1.15 in	5.1 to 6.5

325--Prebish loam

Prebish

Extent: 85 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .32
Land capability, nonirrigated: 6w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 17 in	loam	moderate	3.05 to 3.72 in	5.6 to 7.3
Btg -- 17 to 48 in	sandy loam	moderate	4.35 to 4.98 in	5.6 to 7.3
2C -- 48 to 60 in	sandy loam	moderately slow	0.94 to 1.89 in	5.6 to 7.8

329--Chaska silt loam

Chaska

Extent: 90 percent of the unit
Landform(s): flood plains
Slope gradient: 0 to 2 percent
Parent material: alluvium
Restrictive feature(s): greater than 60 inches
Flooding: frequent
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated: 4w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 6 in	silt loam	moderate	1.18 to 1.30 in	6.6 to 7.8
C1 -- 6 to 36 in	stratified very fine sandy loam to silt loam	moderate	5.15 to 5.76 in	7.4 to 7.8
C2 -- 36 to 60 in	stratified very fine sandy loam to loamy fine sand	moderately rapid	1.65 to 3.78 in	7.4 to 8.4

342B--Kingsley sandy loam, 2 to 6 percent slopes

Kingsley

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 2 to 6 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	sandy loam	moderate	0.79 to 1.42 in	5.6 to 6.5
Bt -- 8 to 39 in	sandy loam	moderately slow	4.04 to 4.98 in	5.1 to 7.3
C -- 39 to 60 in	sandy loam	moderately slow	2.30 to 2.92 in	5.6 to 7.3

342C--Kingsley sandy loam, 6 to 12 percent slopes

Kingsley

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 6 to 12 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 6 in	sandy loam	moderate	0.59 to 1.06 in	5.6 to 6.5
Bt -- 6 to 32 in	sandy loam	moderately slow	3.38 to 4.16 in	5.1 to 7.3
C -- 32 to 60 in	sandy loam	moderately slow	3.07 to 3.91 in	5.6 to 7.3

342D--Kingsley sandy loam, 12 to 18 percent slopes

Kingsley

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 12 to 18 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 3 in	sandy loam	moderate	0.31 to 0.57 in	5.6 to 6.5
E -- 3 to 6 in	sandy loam	moderately slow	0.28 to 0.41 in	5.1 to 7.3
Bt -- 6 to 25 in	sandy loam	moderately slow	2.51 to 3.09 in	5.1 to 7.3
C -- 25 to 60 in	sandy loam	moderately slow	3.81 to 4.85 in	5.6 to 7.3

342E--Kingsley sandy loam, 18 to 30 percent slopes

Kingsley

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 18 to 30 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 3 in	sandy loam	moderate	0.31 to 0.57 in	5.6 to 6.5
E -- 3 to 6 in	sandy loam	moderately slow	0.28 to 0.41 in	5.1 to 7.3
Bt -- 6 to 20 in	sandy loam	moderately slow	1.84 to 2.27 in	5.1 to 7.3
C -- 20 to 60 in	sandy loam	moderately slow	4.37 to 5.57 in	5.6 to 7.3

367B--Campia silt loam, 0 to 8 percent slopes

Campia

Extent: 90 percent of the unit
Landform(s): lake plains
Slope gradient: 0 to 8 percent
Parent material: lacustrine
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .49
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	silt loam	moderate	1.57 to 1.89 in	4.5 to 7.3
E -- 8 to 12 in	silt loam	moderate	0.79 to 0.87 in	4.5 to 6.5
B/E -- 12 to 15 in	silt loam	moderate	0.50 to 0.69 in	4.5 to 6.5
Bt -- 15 to 40 in	silt loam	moderate	4.03 to 5.54 in	4.5 to 6.5
C -- 40 to 60 in	silt loam	moderate	2.76 to 3.94 in	5.1 to 7.3

408--Faxon silt loam

Faxon

Extent: 85 percent of the unit
Landform(s): drainageways on terraces
Slope gradient: 0 to 2 percent
Parent material: loamy sediment over bedrock
Restrictive feature(s): lithic bedrock at 20 to 40 inches
Flooding: frequent
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 2
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 5w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 19 in	silt loam	moderate	3.78 to 4.54 in	6.6 to 7.8
Bg -- 19 to 34 in	silt loam	moderate	1.80 to 2.84 in	6.6 to 7.8
2R -- 34 to 38 in	unweathered bedrock	moderately slow		

411--Waukegan silt loam, 0 to 2 percent slopes

Waukegan

Extent: 90 percent of the unit
Landform(s): outwash plains, outwash terraces
Slope gradient: 0 to 2 percent
Parent material: glaciofluvial sediments over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 2s
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silt loam	moderate	2.17 to 2.36 in	5.6 to 7.3
Bw -- 10 to 24 in	silt loam	moderate	2.83 to 3.12 in	5.1 to 7.3
2BC,2C -- 24 to 60 in	coarse sand	rapid	0.72 to 1.43 in	5.6 to 7.8

411B--Waukegan silt loam, 2 to 6 percent slopes

Waukegan

Extent: 90 percent of the unit
Landform(s): outwash plains, outwash terraces
Slope gradient: 2 to 6 percent
Parent material: glaciofluvial sediments over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silt loam	moderate	2.17 to 2.36 in	5.6 to 7.3
Bw -- 10 to 24 in	silt loam	moderate	2.83 to 3.12 in	5.1 to 7.3
2BC,2C -- 24 to 60 in	coarse sand	rapid	0.72 to 1.43 in	5.6 to 7.8

411C--Waukegan silt loam, 6 to 12 percent slopes

Waukegan

Extent: 90 percent of the unit
Landform(s): outwash plains, outwash terraces
Slope gradient: 6 to 12 percent
Parent material: glaciofluvial sediments over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silt loam	moderate	2.17 to 2.36 in	5.6 to 7.3
Bw -- 10 to 24 in	silt loam	moderate	2.83 to 3.12 in	5.1 to 7.3
2BC,2C -- 24 to 60 in	coarse sand	rapid	0.72 to 1.43 in	5.6 to 7.8

449--Crystal Lake silt loam, 1 to 3 percent slopes

Crystal Lake

Extent: 90 percent of the unit
Landform(s): lake plains
Slope gradient: 1 to 3 percent
Parent material: loess
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .43
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: C
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	silt loam	moderate	1.81 to 2.17 in	4.5 to 7.3
B/E -- 9 to 23 in	silt loam	moderate	2.48 to 3.03 in	4.5 to 6.0
Bt -- 23 to 38 in	silt loam	moderate	2.69 to 3.29 in	4.5 to 6.0
C -- 38 to 60 in	silt loam	moderate	4.41 to 4.85 in	4.5 to 7.3

452--Comstock silt loam

Comstock

Extent: 90 percent of the unit
Landform(s): lake plains
Slope gradient: 0 to 3 percent
Parent material: lacustrine
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .43
Land capability, nonirrigated: 2w
Hydric soil: no
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silt loam	moderate	1.97 to 2.36 in	4.5 to 7.3
E -- 10 to 19 in	silt loam	moderate	1.81 to 1.99 in	4.5 to 6.0
B/E -- 19 to 24 in	silt loam	moderate	0.92 to 1.13 in	4.5 to 6.0
Bt -- 24 to 40 in	silt loam	moderate	2.91 to 3.55 in	4.5 to 6.0
BC -- 40 to 52 in	silt loam	moderate	1.42 to 2.60 in	4.5 to 6.0
C -- 52 to 60 in	silt loam	moderate	0.94 to 1.73 in	5.1 to 7.3

453B--DeMontreville loamy fine sand, 2 to 6 percent slopes

DeMontreville

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 2 to 6 percent
Parent material: outwash over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .32
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loamy fine sand	rapid	0.71 to 0.85 in	5.1 to 7.3
E,BE -- 7 to 24 in	loamy sand	rapid	1.02 to 1.69 in	5.1 to 7.3
2Bt -- 24 to 41 in	sandy loam	moderately slow	1.69 to 2.37 in	5.6 to 6.5
2C -- 41 to 60 in	sandy loam	moderately slow	1.51 to 2.46 in	5.6 to 7.3

453C--DeMontreville loamy fine sand, 6 to 12 percent slopes

DeMontreville

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 6 to 12 percent
Parent material: outwash over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .32
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 6 in	loamy fine sand	rapid	0.59 to 0.71 in	5.1 to 7.3
E,BE -- 6 to 24 in	loamy sand	rapid	1.09 to 1.81 in	5.1 to 7.3
2Bt -- 24 to 40 in	sandy loam	moderately slow	1.61 to 2.26 in	5.6 to 6.5
2C -- 40 to 60 in	sandy loam	moderately slow	1.57 to 2.56 in	5.6 to 7.3

453D--DeMontreville loamy fine sand, 12 to 25 percent slopes

DeMontreville

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 12 to 25 percent
Parent material: outwash over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .32
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 4 in	loamy fine sand	rapid	0.39 to 0.47 in	5.1 to 7.3
E,BE -- 4 to 24 in	loamy sand	rapid	1.20 to 2.01 in	5.1 to 7.3
2Bt -- 24 to 39 in	sandy loam	moderately slow	1.50 to 2.09 in	5.6 to 6.5
2C -- 39 to 60 in	sandy loam	moderately slow	1.67 to 2.71 in	5.6 to 7.3

454B--Mahtomedi loamy sand, 0 to 6 percent slopes

Mahtomedi

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 6 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .10
Land capability, nonirrigated: 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	loamy sand	rapid	0.79 to 0.94 in	5.1 to 6.5
Bw -- 8 to 30 in	gravelly coarse sand	rapid	1.10 to 1.54 in	5.1 to 6.5
C -- 30 to 60 in	gravelly sand	rapid	1.20 to 2.69 in	5.1 to 7.8

454C--Mahtomedi loamy sand, 6 to 12 percent slopes

Mahtomedi

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 6 to 12 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .10
Land capability, nonirrigated: 6s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	loamy sand	rapid	0.79 to 0.94 in	5.1 to 6.5
Bw -- 8 to 30 in	gravelly coarse sand	rapid	1.10 to 1.54 in	5.1 to 6.5
C -- 30 to 60 in	gravelly sand	rapid	1.20 to 2.69 in	5.1 to 7.8

454D--Mahtomedi loamy sand, 12 to 25 percent slopes

Mahtomedi

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 12 to 25 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .10
Land capability, nonirrigated: 6s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 5 in	loamy sand	rapid	0.51 to 0.61 in	5.1 to 6.5
E -- 5 to 8 in	sand	rapid	0.14 to 0.28 in	5.1 to 6.5
Bw -- 8 to 30 in	gravelly coarse sand	rapid	1.10 to 1.54 in	5.1 to 6.5
C -- 30 to 60 in	gravelly sand	rapid	1.20 to 2.69 in	5.1 to 7.8

454F--Mahtomedi loamy sand, 25 to 40 percent slopes

Mahtomedi

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 25 to 40 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .10
Land capability, nonirrigated: 7s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 3 in	loamy sand	rapid	0.31 to 0.38 in	5.1 to 6.5
Bw -- 3 to 23 in	gravelly coarse sand	rapid	0.98 to 1.38 in	5.1 to 6.5
C -- 23 to 60 in	gravelly sand	rapid	1.48 to 3.33 in	5.1 to 7.8

456--Barronett silt loam

Barronett

Extent: 85 percent of the unit
Landform(s): drainageways on lake plains, depressions on lake plains
Slope gradient: 0 to 2 percent
Parent material: lacustrine
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: occasional
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .43
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 7 in	silt loam	moderate	1.42 to 1.84 in	4.5 to 7.3
E -- 7 to 12 in	silt loam	moderate	0.85 to 1.04 in	4.5 to 6.5
Bt -- 12 to 30 in	silty clay loam	moderate	3.26 to 3.98 in	4.5 to 6.5
BC -- 30 to 39 in	silt loam	moderate	1.63 to 1.99 in	6.1 to 7.8
C -- 39 to 60 in	silt loam	moderately slow	3.34 to 4.59 in	6.1 to 7.8

481--Kratka fine sandy loam

Kratka

Extent: 90 percent of the unit
Landform(s): drainageways on moraines, depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: outwash over till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 4w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A1 -- 0 to 11 in	fine sandy loam	moderately rapid	1.43 to 1.98 in	5.6 to 6.5
A2 -- 11 to 14 in	loamy fine sand	rapid	0.19 to 0.44 in	5.6 to 6.5
Bg -- 14 to 29 in	fine sand	rapid	0.75 to 1.50 in	5.6 to 7.3
2Cg -- 29 to 60 in	sandy clay loam	moderate	3.38 to 5.83 in	6.1 to 8.4

504B--Duluth silt loam, 1 to 6 percent slopes

Duluth

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 1 to 6 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .43
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: C
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	silt loam	moderate	1.81 to 2.17 in	5.6 to 6.5
B/E -- 9 to 14 in	loam	moderately slow	0.77 to 0.97 in	5.6 to 6.5
Bt -- 14 to 50 in	loam	slow	5.37 to 6.81 in	5.1 to 6.5
C -- 50 to 60 in	loam	slow	1.38 to 1.87 in	6.1 to 7.8

504C--Duluth silt loam, 6 to 12 percent slopes

Duluth

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 6 to 12 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .37
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: C
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 4 in	silt loam	moderate	0.79 to 0.94 in	5.6 to 6.5
E,B/E -- 4 to 24 in	loam	moderately slow	3.01 to 3.81 in	5.6 to 6.5
Bt -- 24 to 41 in	loam	slow	2.54 to 3.22 in	5.1 to 6.5
C -- 41 to 60 in	loam	slow	2.65 to 3.59 in	6.1 to 7.8

504D--Duluth silt loam, 12 to 25 percent slopes

Duluth

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 12 to 25 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .43
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: C
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 4 in	silt loam	moderate	0.79 to 0.94 in	5.6 to 6.5
E,B/E -- 4 to 14 in	loam	moderately slow	1.54 to 1.94 in	5.6 to 6.5
Bt -- 14 to 31 in	loam	slow	2.54 to 3.22 in	5.1 to 6.5
C -- 31 to 60 in	loam	slow	4.02 to 5.46 in	6.1 to 7.8

507--Poskin silt loam

Poskin

Extent: 90 percent of the unit
Landform(s): drainageways on outwash plains
Slope gradient: 0 to 2 percent
Parent material: alluvium over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .43
Land capability, nonirrigated: 2w
Hydric soil: no
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 13 in	silt loam	moderate	2.73 to 3.12 in	5.1 to 7.3
Bt -- 13 to 28 in	silt loam	moderate	2.54 to 3.29 in	5.1 to 6.5
BC -- 28 to 33 in	loam	moderately rapid	0.26 to 1.13 in	5.6 to 6.5
2C -- 33 to 60 in	gravelly coarse sand	rapid	0.54 to 1.87 in	5.6 to 7.3

540--Seelyeville muck

Seelyeville

Extent: 85 percent of the unit
Landform(s): depressions
Slope gradient: 0 to 1 percent
Parent material: organic material
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 2
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 6w
Hydric soil: yes
Hydrologic group: A/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Oa -- 0 to 60 in	muck	moderately rapid	20.94 to 26.93 in	

541--Rifle muck

Rifle

Extent: 85 percent of the unit
Landform(s): depressions
Slope gradient: 0 to 2 percent
Parent material: organic material
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 2
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 6w
Hydric soil: yes
Hydrologic group: A/D
Potential for frost action: high

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Oa --	0 to 9 in	muck	moderately rapid	3.17 to 4.35 in	
Oe --	9 to 60 in	mucky peat	rapid	24.38 to 29.46 in	

543--Markey muck

Markey

Extent: 85 percent of the unit
Landform(s): depressions
Slope gradient: 0 to 2 percent
Parent material: organic material over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 6w
Hydric soil: yes
Hydrologic group: A/D
Potential for frost action: high

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Oa --	0 to 30 in	muck	moderately rapid	10.47 to 13.46 in	
2A,2Cg --	30 to 60 in	stratified sand to fine sand to loamy very fine sand	rapid	0.90 to 2.39 in	6.1 to 8.4

544--Cathro muck

Cathro

Extent: 85 percent of the unit
Landform(s): depressions
Slope gradient: 0 to 2 percent
Parent material: organic material over loamy sediment
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 6w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Oa1 -- 0 to 13 in	muck	moderately rapid	5.85 to 7.15 in	
Oa2 -- 13 to 38 in	muck	moderately rapid	8.68 to 11.16 in	
2A,2Cg -- 38 to 60 in	loam	moderate	2.43 to 4.19 in	6.6 to 8.4

552--Kerston muck

Kerston

Extent: 95 percent of the unit
Landform(s): alluvial flats on flood plains
Slope gradient: 0 to 2 percent
Parent material: stratified organic material and alluvium
Restrictive feature(s): greater than 60 inches
Flooding: frequent
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 5w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Oa -- 0 to 20 in	muck	moderately rapid	7.03 to 9.04 in	
2C -- 20 to 24 in	silt loam	moderate	0.31 to 0.79 in	5.1 to 8.4
2Oa' -- 24 to 32 in	muck	moderately rapid	2.76 to 3.54 in	
2C',2Oa' -- 32 to 60 in	stratified muck to mucky silt loam	moderately rapid	1.68 to 5.59 in	5.1 to 8.4

852B--Urban land-Copaston complex, 0 to 8 percent slopes

Urban land

Extent: 65 percent of the unit
Landform(s): terraces
Slope gradient: 0 to 8 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Copaston

Extent: 35 percent of the unit
Landform(s): terraces
Slope gradient: 0 to 8 percent
Parent material: loamy sediment over bedrock
Restrictive feature(s): lithic bedrock at 12 to 20 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .28
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: D
Potential for frost action: moderate

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
A --	0 to 8 in	loam	moderate	1.57 to 1.73 in	5.6 to 7.3
Bw1 --	8 to 14 in	sandy loam	moderately rapid	0.94 to 1.07 in	5.6 to 7.3
Bw2 --	14 to 18 in	sandy loam	moderately rapid	0.47 to 0.55 in	5.6 to 7.8
2R --	18 to 22 in	unweathered bedrock	moderate		

857--Urban land-Waukegan complex, 0 to 3 percent slopes

Urban land

Extent: 65 percent of the unit
Landform(s): outwash plains, outwash terraces
Slope gradient: 0 to 3 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: unranked
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

Waukegan

Extent: 35 percent of the unit
Landform(s): outwash plains, outwash terraces
Slope gradient: 0 to 3 percent
Parent material: glaciofluvial sediments over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 2s
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silt loam	moderate	2.17 to 2.36 in	5.6 to 7.3
Bw -- 10 to 24 in	silt loam	moderate	2.83 to 3.12 in	5.1 to 7.3
2BC,2C -- 24 to 60 in	coarse sand	rapid	0.72 to 1.43 in	5.6 to 7.8

857C--Urban land-Waukegan complex, 3 to 15 percent slopes

Urban land

Extent: 65 percent of the unit
Landform(s): outwash plains, outwash terraces
Slope gradient: 3 to 15 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Waukegan

Extent: 35 percent of the unit
Landform(s): outwash plains, outwash terraces
Slope gradient: 3 to 15 percent
Parent material: glaciofluvial sediments over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
Ap	0 to 10 in	silt loam	moderate	2.17 to 2.36 in	5.6 to 7.3
Bw	10 to 24 in	silt loam	moderate	2.83 to 3.12 in	5.1 to 7.3
2BC,2C	24 to 60 in	coarse sand	rapid	0.72 to 1.43 in	5.6 to 7.8

858--Urban land-Chetek complex, 0 to 3 percent slopes

Urban land

Extent: 65 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 3 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: unranked
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Chetek

Extent: 35 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 3 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
Ap --	0 to 6 in	sandy loam	moderately rapid	0.59 to 0.89 in	5.1 to 7.3
Bt --	6 to 20 in	gravelly sandy loam	moderately rapid	1.13 to 1.84 in	5.1 to 7.3
2C --	20 to 60 in	gravelly coarse sand	rapid	0.80 to 1.59 in	5.1 to 7.3

858C--Urban land-Chetek complex, 3 to 15 percent slopes

Urban land

Extent: 65 percent of the unit
Landform(s): outwash plains
Slope gradient: 3 to 15 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Chetek

Extent: 35 percent of the unit
Landform(s): outwash plains
Slope gradient: 3 to 15 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 2
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
Ap --	0 to 6 in	sandy loam	moderately rapid	0.59 to 0.89 in	5.1 to 7.3
Bt --	6 to 18 in	gravelly sandy loam	moderately rapid	0.98 to 1.59 in	5.1 to 7.3
2C --	18 to 60 in	gravelly coarse sand	rapid	0.83 to 1.67 in	5.1 to 7.3

859B--Urban land-Zimmerman complex, 1 to 8 percent slopes

Urban land

Extent: 60 percent of the unit
Landform(s): outwash plains
Slope gradient: 1 to 8 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Zimmerman

Extent: 35 percent of the unit
Landform(s): outwash plains
Slope gradient: 1 to 8 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .24
Land capability, nonirrigated: 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
A,E	0 to 15 in	loamy fine sand	rapid	1.50 to 1.80 in	5.1 to 6.5
E/Bt	15 to 60 in	fine sand	rapid	2.69 to 4.49 in	5.1 to 7.3

860C--Urban land-Hayden-Kingsley complex, 3 to 15 percent slopes

Urban land

Extent: 55 percent of the unit
Landform(s): moraines
Slope gradient: 3 to 15 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Hayden

Extent: 25 percent of the unit
Landform(s): moraines
Slope gradient: 3 to 15 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
Ap	0 to 9 in	fine sandy loam	moderately rapid	1.27 to 1.63 in	5.6 to 7.3
E	9 to 15 in	fine sandy loam	moderately rapid	0.71 to 1.06 in	5.6 to 7.3
Bt	15 to 50 in	clay loam	moderate	5.26 to 6.66 in	5.1 to 7.3
C	50 to 60 in	loam	moderate	1.38 to 1.87 in	7.4 to 8.4

860C--Urban land-Hayden-Kingsley complex, 3 to 15 percent slopes

Kingsley

Extent: 15 percent of the unit
Landform(s): moraines
Slope gradient: 3 to 15 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	sandy loam	moderate	0.79 to 1.42 in	5.6 to 6.5
Bt -- 8 to 39 in	sandy loam	moderately slow	4.04 to 4.98 in	5.1 to 7.3
C -- 39 to 60 in	sandy loam	moderately slow	2.30 to 2.92 in	5.6 to 7.3

860D--Urban land-Hayden-Kingsley complex, 15 to 25 percent slopes

Urban land

Extent: 50 percent of the unit
Landform(s): moraines
Slope gradient: 15 to 25 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Hayden

Extent: 25 percent of the unit
Landform(s): moraines
Slope gradient: 15 to 25 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
Ap --	0 to 9 in	fine sandy loam	moderately rapid	1.27 to 1.63 in	5.6 to 7.3
E --	9 to 15 in	fine sandy loam	moderately rapid	0.71 to 1.06 in	5.6 to 7.3
Bt --	15 to 50 in	clay loam	moderate	5.26 to 6.66 in	5.1 to 7.3
C --	50 to 60 in	loam	moderate	1.38 to 1.87 in	7.4 to 8.4

860D--Urban land-Hayden-Kingsley complex, 15 to 25 percent slopes

Kingsley

Extent: 20 percent of the unit
Landform(s): moraines
Slope gradient: 15 to 25 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	sandy loam	moderate	0.79 to 1.42 in	5.6 to 6.5
Bt -- 8 to 39 in	sandy loam	moderately slow	4.04 to 4.98 in	5.1 to 7.3
C -- 39 to 60 in	sandy loam	moderately slow	2.30 to 2.92 in	5.6 to 7.3

861C--Urban land-Kingsley complex, 3 to 15 percent slopes

Urban land

Extent: 60 percent of the unit
Landform(s): moraines
Slope gradient: 3 to 15 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Kingsley

Extent: 35 percent of the unit
Landform(s): moraines
Slope gradient: 3 to 15 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:

	Texture	Permeability	Available water capacity	pH
Ap -- 0 to 8 in	sandy loam	moderate	0.79 to 1.42 in	5.6 to 6.5
Bt -- 8 to 39 in	sandy loam	moderately slow	4.04 to 4.98 in	5.1 to 7.3
C -- 39 to 60 in	sandy loam	moderately slow	2.30 to 2.92 in	5.6 to 7.3

861D--Urban land-Kingsley complex, 15 to 25 percent slopes

Urban land

Extent: 60 percent of the unit
Landform(s): moraines
Slope gradient: 15 to 25 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Kingsley

Extent: 35 percent of the unit
Landform(s): moraines
Slope gradient: 15 to 25 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
Ap --	0 to 8 in	sandy loam	moderate	0.79 to 1.42 in	5.6 to 6.5
Bt --	8 to 39 in	sandy loam	moderately slow	4.04 to 4.98 in	5.1 to 7.3
C --	39 to 60 in	sandy loam	moderately slow	2.30 to 2.92 in	5.6 to 7.3

862--Urban land-Dundas complex, 1 to 4 percent slopes

Urban land

Extent: 60 percent of the unit
Landform(s): drainageways on moraines
Slope gradient: 1 to 4 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Dundas

Extent: 40 percent of the unit
Landform(s): drainageways on moraines
Slope gradient: 1 to 4 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .17
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
Ap	0 to 9 in	fine sandy loam	moderate	1.36 to 1.81 in	5.6 to 6.5
E	9 to 13 in	sandy clay loam	moderate	0.59 to 0.75 in	5.6 to 7.3
Btg	13 to 45 in	sandy clay loam	moderate	4.78 to 6.06 in	5.6 to 7.3
Cg	45 to 60 in	loam	moderate	2.09 to 2.84 in	7.4 to 8.4

863--Urban land-Lino complex, 0 to 3 percent slopes

Urban land

Extent: 65 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 3 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

Lino

Extent: 35 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 3 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .20
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A/D
Potential for frost action: moderate

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
A --	0 to 9 in	loamy fine sand	rapid	0.91 to 1.09 in	5.1 to 6.0
Bw --	9 to 36 in	loamy fine sand	rapid	1.61 to 2.14 in	5.1 to 6.0
C --	36 to 60 in	fine sand	rapid	1.20 to 1.68 in	5.1 to 6.5

896C--Mahtomedi-Kingsley complex, 3 to 12 percent slopes

Mahtomedi

Extent: 60 percent of the unit
Landform(s): moraines
Slope gradient: 3 to 12 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .10
Land capability, nonirrigated: 6s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	loamy sand	rapid	0.79 to 0.94 in	5.1 to 6.5
Bw -- 8 to 30 in	gravelly coarse sand	rapid	1.10 to 1.54 in	5.1 to 6.5
C -- 30 to 60 in	gravelly sand	rapid	1.20 to 2.69 in	5.1 to 7.8

Kingsley

Extent: 35 percent of the unit
Landform(s): moraines
Slope gradient: 3 to 12 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	sandy loam	moderate	0.79 to 1.42 in	5.6 to 6.5
Bt -- 8 to 39 in	sandy loam	moderately slow	4.04 to 4.98 in	5.1 to 7.3
C -- 39 to 60 in	sandy loam	moderately slow	2.30 to 2.92 in	5.6 to 7.3

896D--Mahtomedi-Kingsley complex, 12 to 25 percent slopes

Mahtomedi

Extent: 60 percent of the unit
Landform(s): moraines
Slope gradient: 12 to 25 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .10
Land capability, nonirrigated: 6s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 5 in	loamy sand	rapid	0.51 to 0.61 in	5.1 to 6.5
E -- 5 to 8 in	sand	rapid	0.14 to 0.28 in	5.1 to 6.5
Bw -- 8 to 30 in	gravelly coarse sand	rapid	1.10 to 1.54 in	5.1 to 6.5
C -- 30 to 60 in	gravelly sand	rapid	1.20 to 2.69 in	5.1 to 7.8

Kingsley

Extent: 35 percent of the unit
Landform(s): moraines
Slope gradient: 12 to 25 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	sandy loam	moderate	0.79 to 1.42 in	5.6 to 6.5
Bt -- 8 to 39 in	sandy loam	moderately slow	4.04 to 4.98 in	5.1 to 7.3
C -- 39 to 60 in	sandy loam	moderately slow	2.30 to 2.92 in	5.6 to 7.3

896F--Mahtomedi-Kingsley complex, 25 to 40 percent slopes

Mahtomedi

Extent: 65 percent of the unit
Landform(s): moraines
Slope gradient: 25 to 40 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .10
Land capability, nonirrigated: 7s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 3 in	loamy sand	rapid	0.31 to 0.38 in	5.1 to 6.5
Bw -- 3 to 23 in	gravelly coarse sand	rapid	0.98 to 1.38 in	5.1 to 6.5
C -- 23 to 60 in	gravelly sand	rapid	1.48 to 3.33 in	5.1 to 7.8

Kingsley

Extent: 30 percent of the unit
Landform(s): moraines
Slope gradient: 25 to 40 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 7e
Hydric soil: no
Hydrologic group: C
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	sandy loam	moderate	0.79 to 1.42 in	5.6 to 6.5
Bt -- 8 to 39 in	sandy loam	moderately slow	4.04 to 4.98 in	5.1 to 7.3
C -- 39 to 60 in	sandy loam	moderately slow	2.30 to 2.92 in	5.6 to 7.3

1013--Pits,quarry

Pits, quarry

Extent: 100 percent of the unit
Landform(s): moraines
Slope gradient: 0 to 50 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil:
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

1027--Udorthents, wet substratum

Udorthents, wet substratum

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 0 to 6 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

1029--Pits, gravel

Pits, gravel

Extent: 100 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 25 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil:
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

1033--Udifluvents

Udifluvents

Extent: 90 percent of the unit
Landform(s): shorelines
Slope gradient: 0 to 6 percent
Parent material: sandy beach sediments
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated: 4w
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

1039--Urban land

Urban land

Extent: 100 percent of the unit
Landform(s): moraines
Slope gradient: 0 to 6 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

1040--Udorthents

Udorthents

Extent: 90 percent of the unit
Landform(s): moraines
Slope gradient: 0 to 6 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

1055--Aquolls and histosols, ponded

Histosols, ponded

Extent: 50 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: organic materials
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 2
Wind erodibility group (WEG): 8
Wind erodibility index (WEI): 0
Kw factor (surface layer) .02
Land capability, nonirrigated: 8w
Hydric soil: yes
Hydrologic group: A/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Oa1 -- 0 to 8 in	muck	moderately rapid	2.76 to 3.54 in	
Oa2 -- 8 to 60 in	muck	moderately rapid	18.19 to 23.39 in	

Aquolls, ponded

Extent: 50 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 8
Wind erodibility index (WEI): 0
Kw factor (surface layer) .32
Land capability, nonirrigated: 8w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 42 in	silty clay loam	moderate	7.58 to 9.27 in	6.1 to 7.8
Bg -- 42 to 50 in	clay loam	moderate	1.18 to 1.50 in	6.6 to 7.8
Cg -- 50 to 60 in	loam	moderate	1.48 to 1.87 in	7.4 to 8.4

1813B--Lino variant loamy fine sand, 2 to 6 percent slopes

Lino

Extent: 90 percent of the unit
Landform(s): outwash plains
Slope gradient: 2 to 6 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .32
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A
Potential for frost action: moderate

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap --	0 to 7 in	loamy fine sand	rapid	0.71 to 0.92 in	5.1 to 7.3
E/Bt --	7 to 60 in	fine sand	rapid	3.17 to 4.22 in	6.1 to 7.3

1819F--Dorerton-Rock outcrop complex, 25 to 65 percent slopes

Dorerton

Extent: 80 percent of the unit
Landform(s): escarpments on terraces, hills
Slope gradient: 25 to 65 percent
Parent material: loamy sediment over limestone bedrock
Restrictive feature(s): lithic bedrock at 45 to 70 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated: 7e
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A,E -- 0 to 10 in	sandy loam	moderately rapid	0.98 to 1.77 in	5.1 to 7.3
2Bt -- 10 to 30 in	flaggy clay loam	moderate	1.61 to 3.81 in	5.1 to 7.3
2C -- 30 to 45 in	very flaggy loamy sand	moderately rapid	0.45 to 2.09 in	5.6 to 7.3
3R -- 45 to 60 in	bedrock	moderately rapid	0.45 to 1.35 in	7.4 to 8.4

Rock outcrop

Extent: 20 percent of the unit
Landform(s): escarpments on terraces, hills
Slope gradient: 25 to 65 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

1820F--Mahtomedi variant-Rock outcrop complex, 25 to 60 percent slopes

Mahtomedi

Extent: 80 percent of the unit
Landform(s): escarpments on terraces
Slope gradient: 25 to 60 percent
Parent material: outwash over sandstone residuum or bedrock
Restrictive feature(s): paralithic bedrock at 40 to 80 inche
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 7s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 3 in	sandy loam	moderately rapid	0.41 to 0.54 in	5.1 to 6.5
Bw -- 3 to 32 in	loamy sand	rapid	2.59 to 3.16 in	5.1 to 6.0
2BC -- 32 to 42 in	sand	rapid	0.51 to 0.72 in	5.1 to 6.5
3Cr -- 42 to 60 in	weathered bedrock	moderately slow		

Rock outcrop

Extent: 20 percent of the unit
Landform(s): escarpments on terraces
Slope gradient: 25 to 60 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: no
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

1821--Algansee loamy sand

Algansee

Extent: 95 percent of the unit
Landform(s): flood plains
Slope gradient: 0 to 2 percent
Parent material: sandy alluvium
Restrictive feature(s): greater than 60 inches
Flooding: occasional
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .10
Land capability, nonirrigated: 3w
Hydric soil: no
Hydrologic group: A/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 6 in	loamy sand	rapid	0.59 to 0.71 in	4.5 to 7.8
C -- 6 to 60 in	sand	rapid	2.70 to 5.39 in	4.5 to 8.4

1847--Barronett silt loam, sandy substratum

Barronett, sandy substratum

Extent: 85 percent of the unit
Landform(s): drainageways on outwash plains
Slope gradient: 0 to 2 percent
Parent material: alluvium over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: occasional
Drainage class: poorly drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .43
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 17 in	silt loam	moderate	3.39 to 4.06 in	5.1 to 6.5
Bt -- 17 to 42 in	silt loam	moderate	4.03 to 5.54 in	5.1 to 6.5
2BC -- 42 to 50 in	loamy sand	rapid	0.16 to 0.55 in	5.1 to 6.5
2C -- 50 to 60 in	sand	very rapid	0.20 to 0.69 in	5.1 to 7.3

1848B--Sparta loamy sand, bedrock substratum, 0 to 6 percent slopes

Sparta, bedrock substratum

Extent: 90 percent of the unit
Landform(s): outwash terraces
Slope gradient: 0 to 6 percent
Parent material: sandy glaciofluvial deposits over bedrock
Restrictive feature(s): lithic bedrock at 40 to 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .15
Land capability, nonirrigated: 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 5 in	loamy sand	rapid	0.51 to 0.61 in	5.6 to 6.0
Bw -- 5 to 40 in	fine sand	rapid	2.10 to 2.80 in	5.6 to 6.0
2C -- 40 to 44 in	clay loam	moderate	0.55 to 0.63 in	5.1 to 7.8
3R -- 44 to 54 in	unweathered bedrock	moderately slow		

M-W--Water, miscellaneous

Water, miscellaneous

Extent: 100 percent of the unit
Landform(s):
Slope gradient:
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding:
Ponding:
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil:
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

W--Water

Water

Extent: 100 percent of the unit
Landform(s):
Slope gradient:
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding:
Ponding:
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil:
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

This report provides a semitabular listing of some soil and site properties and interpretations that are valuable in communicating the concept of a map unit. The report also provides easy access to the commonly used conservation planning information in one place. The major soil components in each map unit are displayed. Minor components may be displayed if they are included in the database and are selected at the time the report is generated.